Chapter 8
Heavy Vehicles and Characteristics

Summary Statistics from Tables in this Chapter

Source		
Table 8.1	Heavy single-unit trucks, 1998	
	Registration (thousands)	*5,414*
	Vehicle miles (millions)	*67,894*
	Fuel economy (miles per gallon)	*7.0*
Table 8.1	Combination trucks, 1998	
	Registration (thousands)	*1,831*
	Vehicle miles (millions)	*128,159*
	Fuel economy (miles per gallon)	*6.1*
Table 8.7	Trucks by size, 1997 Truck Inventory & Use Survey	
	Light (0–10,000 lbs)	*93.5%*
	Medium (10,001–26,000 lbs)	*3.0%*
	Heavy (26,001 lbs and over)	*3.5%*
Table 8.12	Freight Shipments,1997 Commodity Flow Survey	
	Value (billion dollars)	*8,567*
	Tons (millions)	*14,800*
	Ton-miles (billions)	*3,851*
Table 8.13	Bus passenger miles, 1998	(millions)
	Transit	*20,602*
	Intercity	*31,700*

Table 8.1
Summary Statistics for Other Single-Unit and Combination Trucks, 1970–98[a]

	Other single-unit trucks[b]				Combination trucks[c]			
Year	Registrations (thousands)	Vehicle travel (million miles)	Fuel use (million gallons)	Fuel economy (miles per gallon)	Registrations (thousands)	Vehicle travel (million miles)	Fuel use (million gallons)	Fuel economy (miles per gallon)
1970	3,681	27,081	3,968	6.8	905	35,134	7,348	4.8
1971	3,770	28,985	4,217	6.9	919	37,217	7,595	4.9
1972	3,918	31,414	4,844	6.5	961	40,706	8,120	5.0
1973	4,131	33,661	5,294	6.4	1,029	45,649	9,026	5.1
1974	4,211	33,441	5,261	6.4	1,085	45,966	9,080	5.1
1975	4,232	34,606	5,420	6.4	1,131	46,724	9,177	5.1
1976	4,350	36,390	5,706	6.4	1,225	49,680	9,703	5.1
1977	4,450	39,339	6,268	6.3	1,240	55,682	10,814	5.1
1978	4,518	42,747	6,955	6.1	1,342	62,992	12,165	5.2
1979	4,505	42,012	7,050	6.0	1,386	66,992	12,864	5.2
1980	4,374	39,813	6,923	5.8	1,417	68,678	13,037	5.3
1981	4,455	39,568	6,867	5.8	1,261	69,134	13,509	5.1
1982	4,325	40,658	6,803	6.0	1,265	70,765	13,583	5.2
1983	4,204	42,546	6,965	6.1	1,304	73,586	13,796	5.3
1984	4,061	44,419	7,240	6.1	1,340	77,377	14,188	5.5
1985	4,593	45,441	7,399	6.1	1,403	78,063	14,005	5.6
1986	4,313	45,637	7,386	6.2	1,408	81,038	14,475	5.6
1987	4,188	48,022	7,523	6.4	1,530	85,495	14,990	5.7
1988	4,470	49,434	7,701	6.4	1,667	88,551	15,224	5.8
1989	4,519	50,870	7,779	6.5	1,707	91,879	15,733	5.8
1990	4,487	51,901	8,357	6.2	1,709	94,341	16,133	5.8
1991	4,481	52,898	8,172	6.5	1,691	96,645	16,809	5.7
1992	4,370	53,874	8,237	6.5	1,675	99,510	17,216	5.8
1993	4,408	56,772	8,488	6.7	1,680	103,116	17,748	5.8
1994	4,906	61,284	9,032	6.8	1,681	108,932	18,653	5.8
1995	5,024	62,705	9,216	6.8	1,696	115,451	19,777	5.8
1996	5,266	64,072	9,409	6.8	1,747	118,899	20,192	5.9
1997	5,293	66,893	9,576	7.0	1,790	124,584	20,302	6.1
1998	5,414	67,894	9,741	7.0	1,831	128,159	21,100	6.1
				Average annual percentage change				
1970–98	1.4%	3.3%	3.3%	0.1%	2.5%	4.7%	3.8%	0.9%
1988–98	1.9%	3.2%	2.4%	0.9%	1.6%	3.8%	3.3%	0.5%

Source:
U. S. Department of Transportation, Federal Highway Administration, *Highway Statistics 1998*, Washington, DC, 1999, Table VM1 and annual.
(Additional resources: www.fhwa.dot.gov)

[a] The Federal Highway Administration changed the combination truck travel methodology in 1993.
[b] Other single-unit trucks are defined as all single-unit trucks with more than two axles or more than four tires.
[c] The fuel economy for combination trucks is not the same as the fuel economy for Class 8 trucks. Fuel economy for Class 8 trucks is shown in Table 8.5.

Table 8.2
New Retail Truck Sales by Gross Vehicle Weight, 1970–98[a]
(thousands)

Calendar year	Class 1 6,000 lbs. or less	Class 2 6,001–10,000 lbs.	Class 3 10,001–14,000 lbs.	Class 4 14,001–16,000 lbs.	Class 5 16,001–19,500 lbs.	Class 6 19,501–26,000 lbs.	Class 7 26,001–33,000 lbs.	Class 8 33,001 lbs. and over	Total
Domestic sales (import data are not available)									
1970[b]	1,049	408	6	12	58	133	36	89	1,791
1971	1,185	488	6	15	46	140	34	99	2,013
1972	1,498	599	55	11	29	182	35	126	2,535
1973	1,754	758	50	3	16	236	37	155	3,009
1974	1,467	696	21	3	14	207	31	148	2,587
1975	1,101	952	23	1	9	159	23	83	2,351
1976	1,318	1,401	43	[c]	9	153	22	97	3,043
1977	1,306	1,803	36	3	5	163	28	141	3,485
1978	1,334	2,140	73	6	3	156	41	162	3,915
1979	1,271	1,574	15	3	3	146	50	174	3,236
1980	985	975	4	[c]	2	90	58	117	2,231
1981	896	850	1	[c]	2	72	51	100	1,972
1982	1,102	961	1	[c]	1	44	62	76	2,248
1983	1,314	1,207	[c]	[c]	1	47	59	82	2,710
1984	2,031	1,224	6	[c]	5	55	78	138	3,538
1985	2,408	1,280	11	[c]	5	48	97	134	3,983
Domestic and import sales									
1986	3,380	1,214	12	[c]	6	45	101	113	4,870
1987	3,435	1,175	14	2	8	44	103	131	4,912
1988	3,467	1,333	14	21	8	54	103	148	5,149
1989	3,313	1,297	19	27	7	39	93	145	4,942
1990	3,451	1,097	21	27	5	38	85	121	4,846
1991	3,246	876	21	24	3	22	73	99	4,365
1992	3,608	1,021	26	26	4	28	73	119	4,903
1993	4,119	1,232	27	33	4	27	81	158	5,681
1994	4,527	1,506	35	44	4	20	98	186	6,421
1995	4,422	1,631	40	53	4	23	106	201	6,481
1996	4,829	1,690	52	59	7	19	104	170	6,930
1997	5,085	1,712	53	57	9	18	114	178	7,226
1998	5,263	2,036	102	43	25	32	115	209	7,825
					Average annual percentage change				
1970–85	5.7%	7.9%	4.1%	-	-15.1%	-6.6%	6.8%	2.8%	5.5%
1986–98	3.8%	4.4%	19.5%	-	12.6%	-2.8%	1.1%	5.3%	4.0%

Source:

1970–97: American Automobile Manufacturers Association, *Motor Vehicle Facts and Figures 1998*, Detroit, MI, 1998, p. 24, and annual. 1998: Ward's Communications, *Ward's Automotive Yearbook*, Southfield, MI, p. 260. (Additional resources: www.wardsauto.com)

[a] Sales include domestic-sponsored imports.
[b] Data for 1970 is based on new truck registrations.
[c] Less than 500 trucks.

Vehicle Inventory and Use Survey

The Vehicle Inventory and Use Survey (VIUS), which was formerly the Truck Inventory and Use Survey, provides data on the physical and operational characteristics of the Nation's truck population. It is based on a probability sample of private and commercial trucks registered (or licensed) in each state. The name of the 1997 survey was changed to the Vehicle Inventory and Use Survey due to future possibilities of including additional vehicle types. Data for 1997 have been released in a report, as well as on CD-ROM. Copies may be obtained by contacting the U.S. Bureau of the Census, Transportation Characteristics Surveys Branch (301) 457-2797. Internet site **www. census.gov/svsd/www/tiusview.html** is the location of the VIUS on-line.

Since 1987 the survey has included minivans, vans, station wagons on truck chassis, and sport utility vehicles in addition to the bigger trucks. The 1977 and 1982 surveys did not include those vehicle types. The estimated number of trucks that were within the scope of the 1997 VIUS and registered in the U.S. as of July 1, 1997, was 72.8 million. These trucks were estimated to have been driven a total of 1,044 billion miles during 1997, an increase of 32.8% from 1992. The average annual miles traveled per truck was estimated at 14,300 miles.

In the 1997 VIUS, there are several ways to classify a truck by weight. The survey respondent was asked the average weight of the vehicle or vehicle-trailer combination when carrying a typical payload; the empty weight (truck minus cargo) of the vehicle as it was usually operated; and the maximum gross weight at which the vehicle or vehicle-trailer combination was operated. The Census Bureau also collected information on the Gross Vehicle Weight Class of the vehicles (decoded from the vehicle identification number) and the registered weight of the vehicles from the State registration files. Some of these weights are only provided in categories, while others are exact weights. Since all these weights could be quite different for a single truck, the tabulations by weight can be quite confusing. For illustration of this, see Tables 8.3 and 8.4. The first set of data are based on the Gross Vehicle Weight Class of the vehicle when it was manufactured; the data on Table 8.5 are based on the average weight as reported by the respondent. There is a 24% difference in the number of Class 1 trucks (6,000 lbs. and less). In most tables, the Gross Vehicle Weight Class was used. However, on the tables comparing different survey estimates, average weight must be used, as the older surveys did not include data on the Gross Vehicle Weight rating.

These tables illustrate the difference between two weight variables in the Vehicle Inventory and Use Survey. The manufacturer's gross vehicle weight class is likely to be more accurate than the average weight provided by the respondent.

Table 8.3
Truck Statistics by Gross Vehicle Weight Class, 1997

Manufacturer's gross vehicle weight class	Number of trucks	Percentage of trucks	Average annual miles per truck	Average fuel economy	Gallons of fuel used (millions)	Percentage of fuel use
6,000 lbs and less	45,240,632	62.14%	13,328	17.82	35,184	44.34%
6,001 – 10,000 lbs	22,373,167	30.73%	12,952	14.11	21,226	26.75%
10,001 – 14,000 lbs	510,476	0.70%	15,650	10.83	771	0.97%
14,001 – 16,000 lbs	194,951	0.27%	16,390	10.11	320	0.40%
16,001 – 19,500 lbs	178,111	0.24%	6,016	8.69	117	0.15%
19,501 – 26,000 lbs	1,884,246	2.59%	13,637	8.21	3,202	4.04%
26,001 – 33,000 lbs	207,386	0.28%	35,588	7.07	1,096	1.38%
33,001 lbs and up	2,211,283	3.04%	48,095	6.69	17,427	21.96%
Total	**72,800,252**	**100.00%**	**14,347**	**16.02**	**79,344**	**100.00%**

Source:
U.S. Department of Commerce, Bureau of the Census, *1997 Vehicle Inventory and Use Survey*, Microdata File on CD, 2000. (Additional resources: www.census.gov/svsd/www.tiusview.html)

Table 8.4
Percentage of Trucks by Size Class, 1977, 1982, 1987, 1992, and 1997
(percentage)

Average weight as reported by respondent	1977 TIUS	1982 TIUS	1987 TIUS	1992 TIUS	1997 VIUS
6,000 lbs and less	66.0%	77.8%	85.4%	85.4%	86.3%
6,001–10,000 lbs	17.9%	11.6%	6.5%	7.9%	7.3%
10,000–14,000 lbs	3.1%	1.6%	1.2%	1.2%	1.1%
14,001–16,000 lbs	1.3%	0.9%	0.5%	0.5%	0.4%
16,001–19,500 lbs	2.1%	1.0%	0.6%	0.5%	0.4%
19,501–26,000 lbs	3.4%	2.4%	1.7%	1.2%	1.0%
26,001–33,000 lbs	1.5%	1.0%	0.8%	0.7%	0.6%
33,001 lbs and over	4.6%	3.8%	3.3%	2.8%	2.9%

Source:
Estimates are based on data provided on the following public use files: U.S. Department of Commerce, Bureau of the Census, Census of Transportation, Washington, DC, *1977 Truck Inventory and Use Survey*, 1980; *1982 Truck Inventory and Use Survey*, 1985; *1987 Truck Inventory and Use Survey*, 1990; *1992 Truck Inventory and Use Survey*, 1995; *1997 Vehicle Inventory and Use Survey*, 2000.
(Additional resources: www.census.gov/svsd/www/tiusview.html)

Though diesel engines are generally more efficient than gasoline engines, variations in patterns of use and weight distributions within a weight category can cause the fuel economies to be more similar. Data in the ***Total*** *row give a good indication that the gasoline trucks are mainly lighter vehicles and diesels are used in heavier applications.*

Table 8.5
Truck Fuel Economy by Fuel Type and Size Class, 1997
(miles per gallon)

Average weight as reported by the respondent	Gasoline trucks	Diesel trucks
6,000 lbs and less	16.8	16.6
6,001–10,000 lbs	13.7	13.7
10,001–14,000 lbs	10.4	11.8
14,001–16,000 lbs	8.9	10.3
16,001–19,500 lbs	8.6	9.3
19,501–26,000 lbs	7.5	8.3
26,001–33,000 lbs	7.0	7.5
33,001 lbs and up	6.5	5.9
Weighted average	16.4	10.3

Source:
U.S. Department of Commerce, Bureau of the Census, *1997 Vehicle Inventory and Use Survey*, Microdata File on CD, 2000. (Additional resources: www.census.gov/svsd/www/tiusview.html)

Table 8.6
Truck Fuel Economy by Size Class, 1977, 1982, 1987, 1992, and 1997
(miles per gallon)

Average weight as reported by respondent	1977 TIUS	1982 TIUS	1987 TIUS	1992 TIUS	1997 VIUS
6,000 lbs and less	13.2	14.2	15.0	16.1	16.8
6,001–10,000 lbs	11.5	11.1	10.9	12.2	13.6
10,000–14,000 lbs	9.4	8.1	8.1	9.2	10.8
14,001–16,000 lbs	6.9	7.5	7.5	8.5	9.5
16,001–19,500 lbs	7.6	7.2	7.1	8.1	8.9
19,501–26,000 lbs	6.1	6.9	6.4	7.2	7.9
26,001–33,000 lbs	5.3	6.2	6.1	6.8	7.4
33,001 lbs and over	4.8	5.2	5.3	5.5	6.0

Source:
Estimates are based on data provided on the following public use files: U.S. Department of Commerce, Bureau of the Census, Census of Transportation, Washington, DC, *1977 Truck Inventory and Use Survey*, 1980; *1982 Truck Inventory and Use Survey*, 1985; *1987 Truck Inventory and Use Survey*, 1990; *1992 Truck Inventory and Use Survey*, 1995; *1997 Vehicle Inventory and Use Survey*, 2000. (Additional resources: www.census.gov/svsd/www/tiusview.html)

Table 8.7
Truck Statistics by Size, 1997

	Manufacturer's gross vehicle weight class			
	Light (< 10,000 lbs)	Medium (10,001–26,000 lbs)	Heavy (> 26,000 lbs)	Total
Trucks	68,099,912	2,164,791	2,535,549	72,800,252
Trucks (%)	93.54%	2.97%	3.48%	100%
Miles per truck	13,165	13,837	46,513	14,347
Total miles (%)	85.84%	2.87%	11.29%	100%
Fuel use (%)	71.61%	3.99%	24.40%	100%
Fuel economy (mpg)	16.55	9.37	6.20	16.02
	Range of operation			
Under 50 miles	75.15%	62.50%	39.55%	73.53%
51–100 miles	12.84%	16.60%	16.73%	13.09%
101–200 miles	3.85%	5.60%	10.82%	4.15%
201–500 miles	2.05%	5.74%	12.18%	2.52%
Over 500 miles	2.28%	20.04%	16.00%	2.75%
Off-road	3.83%	7.52%	4.74%	3.97%
Total	100%	100%	100%	100%
	Primary refueling facility			
Central company-owned	14.55%	24.68%	39.13%	29.20%
Single off-site contract	4.27%	6.11%	6.89%	6.08%
Pubic station	77.71%	64.62%	49.83%	60.56%
Other	3.47%	4.59%	4.16%	4.16%
Total	100%	100%	100%	100%

Source:
U.S. Department of Commerce, Bureau of the Census, *1997 Vehicle Inventory and Use Survey*, Microdata
File on CD, 2000. (Additional resources: www.census.gov/svsd/www/tiusview.html)

Table 8.8
Percentage of Trucks by Size Ranked by Major Use, 1997

Rank	Light (< 10,000 lbs)	Medium (10,001 – 26,000 lbs)	Heavy (> 26,000 lbs)
1	**Personal**	**Agriculture**	**For Hire**
	74.56%	19.54%	31.48%
2	**Construction**	**Construction**	**Construction**
	7.56%	20.19%	17.56%
3	**Services[a]**	**Services[a]**	**Agriculture**
	5.57%	11.64%	14.01%
4	**Agriculture**	**Retail**	**Wholesale**
	3.82%	9.28%	7.81%
5	**Retail**	**Utilities**	**Retail**
	2.79%	4.40%	5.67%
6	**Not in Use**	**Wholesale**	**Personal**
	1.61%	7.31%	0.31%
7	**Wholesale**	**For Hire**	**Services[a]**
	1.33%	5.47%	7.39%
8	**Manufacturing**	**Personal**	**Manufacturing**
	0.74%	7.00%	5.61%
9	**Utilities**	**Manufacturing**	**Not in Use**
	0.75%	3.72%	1.11%
10	**Daily Rental**	**Not in Use**	**Utilities**
	0.53%	3.21%	2.18%
11	**Forestry**	**Daily Rental**	**Forestry**
	0.26%	4.21%	2.56%
12	**Mining**	**Forestry**	**Daily Rental**
	0.25%	1.64%	2.11%
13	**For Hire**	**Mining**	**Mining**
	0.21%	1.14%	2.18%
14	**One-Way Rental**	**One-Way Rental**	**One-Way Rental**
	0.01%	1.24%	0.01%
15	**Other**	**Other**	**Other**
	0.00%	0.00%	0.00%

Source:
U.S. Department of Commerce, Bureau of the Census, *1997 Vehicle Inventory and Use Survey*, Micro data File on CD, 2000. (Additional resources: www.census.gov/svsd/www/tiusview.html)

[a] Business and personal services.

Nearly 60% of all truck fleets use public fueling stations as their primary refueling facility. As expected, larger fleets use central company-owned facilities more than smaller fleets. Mid-size fleets (10–500 vehicles) use off-site contract facilities more than the smaller or larger fleets.

Table 8.9
Percentage of Trucks by Fleet Size and Primary Refueling Facility, 1997

	Primary refueling facility				
Truck fleet size	Central company-owned fueling facility	Single contract fueling facility located off-site	Public fueling stations	Other	Total
1	5.94%	2.70%	87.26%	4.09%	100%
2–5	13.80%	4.56%	76.12%	5.52%	100%
6–9	25.77%	7.32%	62.02%	4.88%	100%
10–24	37.08%	10.43%	49.70%	2.79%	100%
25–99	48.48%	9.65%	39.29%	2.59%	100%
100–499	48.76%	10.62%	38.40%	2.22%	100%
500–999	46.39%	7.46%	44.38%	1.77%	100%
1,000–4,999	45.24%	4.93%	45.94%	3.89%	100%
5,000–9,999	35.77%	6.01%	53.36%	4.87%	100%
10,000 & up	71.72%	2.56%	19.27%	6.45%	100%
Total	**30.08%**	**6.39%**	**59.37%**	**4.16%**	**100%**

Source:
U.S. Department of Commerce, Bureau of the Census, *1997 Vehicle Inventory and Use Survey*, Microdata File on CD, 2000. (Additional resources: www.census.gov/svsd/www/tiusview.html)

Table 8.10
Percentage of Trucks by Major Use and Primary Refueling Facility, 1997

	Primary refueling facility				
Major Use	Central company-owned fueling facility	Single contract fueling facility located off-site	Public fueling stations	Other	Total
Agricultural services	32.09%	2.99%	53.92%	11.00%	100%
Forestry or lumbering activities	22.49%	4.50%	70.33%	2.68%	100%
Construction work	33.40%	5.39%	58.79%	2.42%	100%
Contractor activities or special trades	12.09%	4.38%	81.18%	2.36%	100%
Manufacturing, refining or processing activities	35.47%	9.48%	53.69%	1.36%	100%
Wholesale trade	32.56%	11.90%	53.62%	1.92%	100%
Retail trade	28.21%	10.25%	59.41%	2.12%	100%
Business and personal services	26.40%	6.33%	65.42%	1.85%	100%
Utilities	40.56%	5.09%	52.25%	2.09%	100%
Mining or quarrying activities	43.82%	9.32%	44.44%	2.42%	100%
Daily rental	39.42%	13.29%	45.12%	2.17%	100%
Not in use	10.56%	2.37%	53.12%	33.94%	100%
For-hire transportation	32.87%	4.90%	59.53%	2.70%	100%
One-way rental	48.47%	3.10%	48.43%	0.00%	100%
Personal transportation	2.02%	0.56%	94.46%	2.96%	100%
Total	29.20%	6.08%	60.56%	4.16%	100%

Source:
U.S. Department of Commerce, Bureau of the Census, *1997 Vehicle Inventory and Use Survey*, Microdata File on CD, 2000.
(Additional resources: www.census.gov/svsd/www/tiusview.html)

Commodity Flow Survey

The Commodity Flow Survey (CFS) is designed to provide data on the flow of goods and materials by mode of transport. The 1993 and 1997 CFS are a continuation of statistics collected in the Commodity Transportation Survey from 1963 through 1977, and includes major improvements in methodology, sample size, and scope. In 1997, a sample of 100,000 domestic establishments randomly selected from a universe of about 800,000 establishments engaged in mining, manufacturing, wholesale, auxiliary establishments (warehouses) of multi-establishment companies, and some selected activities in retail and service was used. Each selected establishment reported a sample of approximately 25 outbound shipments for a one-week period in each of the four calendar quarters of 1997. This produced a total sample of over 5 million shipments. For each sampled shipment, zip codes of origin and destination, 5-digit Standard Classification of Transported Goods (SCTG) code, weight, value, and modes of transport, were provided. Establishments were also asked to indicate whether the shipment was containerized, a hazardous material, or an export.

The 1993 and 1997 CFS differ from previous surveys in their greatly expanded coverage of intermodalism. Earlier surveys reported only the principal mode. The 1993 and 1997 surveys report all modes used for the shipment (for-hire truck, private truck, rail, inland water, deep sea water, pipeline, air, parcel delivery or U.S. Postal Service, other mode, unknown). Route distance for each mode for each shipment as imputed from a mode-distance table developed by Oak Ridge National Laboratory. Distance, in turn, was used to compute ton-mileage by mode of transport.

For more information about the CFS, contact the Commodity Flow Survey Branch, Department of Commerce, Bureau of the Census, Services Division at (301) 457-2108, or visit the following Internet site: **www.bts.gov/cfs** .

Table 8.11
Growth of Freight Activity in the United States: Comparison of the 1997 and 1993 Commodity Flow Surveys
(Detail may not add to total because of rounding)

Mode of Transportation	Value			Tons			Ton-miles			Average miles per shipment		
	1997 (billion 1997 dollars)	1993 (billion 1997 dollars)	Percent change	1997 (millions)	1993 (millions)	Percent change	1997 (billions)	1993 (billions)	Percent change	1997	1993	Percent change
All modes	6,944.0	6,360.8	9.2%	11,089.7	9,688.5	14.5%	2,661.4	2,420.9	9.9%	472	424	11.4%
Single modes	5,719.6	5,376.3	6.4%	10,436.5	8,922.3	17.0%	2,383.5	2,136.9	11.5%	184	197	-6.4%
Truck[a]	4981.5	4791.0	4.0%	7700.7	6385.9	20.6%	1023.5	869.5	17.7%	144	144	-0.1%
For-hire truck	2901.3	2856.1	1.6%	3402.6	2808.3	21.2%	741.1	629.0	17.8%	485	472	2.9%
Private truck	2036.5	1910.4	6.6%	4137.3	3543.5	16.8%	268.6	235.9	13.9%	53	52	2.1%
Rail	319.6	269.2	18.7%	1,549.8	1,544.1	0.4%	1,022.5	942.6	8.5%	769	766	3.0%
Water	75.8	67.1	13.1%	563.4	505.4	11.5%	261.7	272.0	-3.8%	482	[c]	[c]
Shallow draft	53.9	44.3	21.7%	414.8	362.5	14.4%	189.3	164.4	15.2%	177	[c]	[c]
Great Lakes	1.5	[c]	[c]	38.4	33.0	[c]	13.4	12.4	8.2%	204	534	-61.8%
Deep draft	20.4	21.5	-4.9%	110.2	109.9	0.2%	59.0	95.2	-38.0%	1,024	1,861	-45.0%
Air (includes truck and air)	229.1	151.3	51.4%	4.5	3.1	42.6%	6.2	4.0	55.5%	1,380	1,415	-2.5%
Pipeline[b]	113.5	97.8	16.1%	618.2	483.6	27.8%	[c]	[c]	[c]	[c]	[c]	[c]
Multiple modes	945.9	720.9	31.2%	216.7	225.7	-4.0%	204.5	191.5	6.8%	813	736	10.5%
Parcel, U.S. Postal Service or courier	855.9	612.8	39.7%	23.7	18.9	25.4%	18.0	13.2	36.8%	813	734	10.7%
Truck and rail	75.7	90.4	-16.3%	54.2	40.6	33.5%	55.6	37.7	47.5%	1,347	1,403	-3.9%
Truck and water	8.2	10.2	-19.4%	33.2	68.0	-51.2%	34.8	40.6	-14.4%	1,265	1,417	-10.7%
Rail and water	1.8	4.0	-55.2%	79.3	79.2	0.1%	77.6	70.2	10.5%	1,092	627	74.1%
Other multiple modes	4.3	3.5	22.0%	26.2	18.9	38.6%	18.6	[c]	[c]	[c]	1,082	[c]
Other and unknown modes	278.6	263.6	5.7%	436.5	540.5	-19.2%	73.4	92.6	-20.7%	122	229	-46.9%

Source:
U.S. Department of Transportation, Bureau of Transportation Statistics, *Freight USA*, Washington, DC, 2000. (Additional resources: www.bts.gov/cfs)

[a] "Truck" as a single mode includes shipments which went by private truck only, for-hire truck only, or a combination of private truck and for-hire truck.

[b] CFS data for pipeline lack most shipments of crude oil.

[c] Denotes data do not meet publication standards because of high sampling variability or other reasons. Some unpublished estimates can be derived from other data published in this table. However, figures obtained in this manner are subject to these same limitations.

Some freight activities, such as pipeline shipments, were not within the scope of the Commodity Flow Survey (CFS). Data for the out-of-scope freight activities are estimated here and added to the CFS data to give a more complete picture of total freight activity.

Table 8.12
Commodity Flow Survey Freight Activity, 1997

Mode	Value (billion dollars)	Tons (millions)	Ton miles (billions)	Value (percent)	Tons (percent)	Ton miles (percent)	Value per ton (dollars)	Value per pound (dollars)	Ton miles per ton[a]
CFS 1997:									
Parcel, postal, courier service	$856	24	18	10.0	0.2	0.5	35,667	$17.83	750
Truck (for-hire, private, both)	$4,982	7,701	1,024	58.2	52.0	26.6	647	$0.32	133
Air (including truck and air)	$229	4	6	2.7	0.0	0.2	57,250	$28.63	1,500
Rail	$320	1,550	1,023	3.7	10.5	26.6	206	$0.10	660
Water	$76	563	262	0.9	3.8	6.8	135	$0.07	465
Pipeline[b]	$113	618	244	1.3	4.2	6.3	183	$0.09	395
Truck and rail	$76	54	56	0.9	0.4	1.5	1,407	$0.70	1,037
Other intermodal combinations[c]	$14	139	131	0.2	0.9	3.4	101	$0.05	942
Other and unknown modes	$279	437	73	3.3	3.0	1.9	638	$0.32	167
CFS 1997 Subtotal	$6,945	11,090	2,837	81.1	74.9	73.7	626	$0.31	256
Estimates of Out-of-scope Components:									
Truck									
Farm based truck shipments	$197	1,050	39	2.3	7.1	1.0	188	$0.09	37
Imports from Canada	$100	67	32	1.2	0.5	0.8	1,493	$0.75	478
Imports from Mexico	$57	18	14	0.7	0.1	0.4	3,167	$1.58	778
Pipeline									
Crude oil	$81	740	377	0.9	5.0	9.8	109	$0.05	509
Petroleum products[d]	$37	90	35	0.4	0.6	0.9	411	$0.21	389
Water[e]									
Imports	$403	765	58	4.7	5.2	1.5	527	$0.26	76
Exports	$222	411	48	2.6	2.8	1.2	540	$0.27	117
Other	$61	481	358	0.7	3.3	9.3	127	$0.06	744
Rail									
Imports from Canada and Mexico	$40	62	43	0.5	0.4	1.1	645	$0.32	694
Non-commodity		10	10		0.1	0.3			1,000
Air									
Imports	$213	3		2.5	0.0		71,000	$35.50	
Exports	$211	3		2.5	0.0		70,333	$35.17	
US Mail[f]		10			0.1				
Out-of-scope Estimates Subtotal	$1,622	3,710	1,014	18.9	25.1	26.3	437	$0.22	273
CFS + Out-of-scope Estimates:	$8,567	14,800	3,851	100.0	100.0	100.0	580	$0.29	272
Intermodal Total (excluding air)[g]	$946	217	205	11.0	1.5	5.3	4,359	$2.18	945
Intermodal Total (including air)	$1,175	221	211	13.7	1.5	5.5	5,317	$2.66	1,047

Source:
U.S. Department of Transportation, Bureau of Transportation Statistics, *Freight USA*, Washington, DC, 2000.
(Additional resources: www.bts.gov/cfs)

[a] Tonnage for CFS pipeline and U.S. Mail was not included in the total tonnage for the calculation of ton-miles/ton.
[b] The pipeline ton-miles shown here are not a CFS estimate, but were calculated using data from the Assn. of Oil Pipe Lines.
[c] This includes truck and water, rail and water, and other combinations.
[d] These numbers are the differences between the FERC totals and CFS estimates.
[e] Ton-miles for water imports & exports include only the portion of ton-miles within the U.S. Waterways to or from the U.S. port.
[f] U.S. Mail tonnage includes all mail except class B standard mail, and international parcel post for surface and air mail.
[g] Intermodal total is a combination of parcel, postal, courier; truck and rail; truck and water; rail and water; and other intermodal. It excludes truck and air which is added to air transportation.

Table 8.13
Summary Statistics on Buses by Type, 1970–98

Year	Transit motor bus[a]	Intercity bus	School bus
	Number in operation		
1970	49,700	22,000	288,700
1975	50,811	20,500	368,300
1980	59,411	21,400	418,255
1985	64,258	20,200	480,400
1990	58,714	20,680	508,261
1995	67,107	20,138	560,447
1996	71,678	20,649	569,395
1997	72,770	20,910	568,113
1998	74,641	19,173	582,470
	Vehicle-miles (millions)		
1970	1,409	1,209	2,100
1975	1,526	1,126	2,500
1980	1,677	1,162	2,900
1985	1,863	933	3,448
1990	2,123	991	3,800
1995	2,184	1,194	5,000
1996	2,221	1,220	5,000
1997	2,245	1,319	4,400
1998	2,291	1,366	4,300
	Passenger-miles (millions)		
1970	18,210	25,300	[b]
1975	18,300	25,400	[b]
1980	21,790	27,400	[b]
1985	21,161	23,800	[b]
1990	20,981	23,000	74,200
1995	18,818	28,100	95,000
1996	19,096	28,800	99,000
1997	19,604	30,600	82,900
1998	20,602	31,700	[b]
	Energy use (trillion Btu)		
1970	44.8	26.6	37.5
1975	51.5	24.8	42.6
1980	61.3	29.3	47.5
1985	72.4	31.5	57.0
1990	78.9	21.7	64.8[d]
1995	87.5 [c]	22.6	83.9
1996	89.3	22.6	84.7
1997	93.0	22.2	83.9
1998	87.3	22.6	84.7

Source:
See Appendix A for Table 8.13.
(Additional resources: www.apta.com, www.fhwa.dot.gov, www.schoolbusfleet.com)

[a] Data for transit buses after 1983 are not comparable with prior data. Data for prior years were provided voluntarily and statistically expanded; in 1984 reporting became mandatory.

[b] Data are not available.

[c] Beginning in 1992, data became available on alternative fuel use by transit buses.

[d] Assumptions about fuel type changed in this year. See Appendix A for details.